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The Listing of Claims will replace all prior versions, and listings, of claims in the

application.

## LISTING OF CLAIMS

Claim 1. (Previously Presented) A copolymer library comprising a number of

homologously bivariant copolymers sufficient to incrementally establish meaningful, library-

wide quantitative structure-property correlations, said copolymer library consisting of

different strictly alternating A-B type copolymers each separately polymerized in parallel

under essentially the same polymerization conditions from monomers consisting essentially

of:

(1) a first monomer selected from the group consisting of a first ~~homologously

varying~~ series of monomers with ~~the same~~ polymerizable ~~functionable~~ carboxylic acid

groups and a single homologous variation within said series ~~;~~ and

(2) a second monomer selected from the group consisting of a ~~homologously varying~~

series of second monomers ~~having the same~~ with polymerizable ~~functionable~~ -OH groups

and a single homologous variation within said series ~~that are reactive with the polymerizable

functional groups of said first series of monomers to form strictly alternating A-B type

copolymers~~;

wherein (A) said homologous variations of said first and second monomer series are

selected to be complimentary to one another so that the homologous variations of said first

monomer series have a different influence on polymer properties than the homologous

variations of said second monomer series; and

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(B) the monomers within each monomer series are selected to have comparable reactivities at said polymerizable ~~functional~~ groups to permit the same polymerization conditions to be employed for each parallel synthesis reaction in a way that results in all polymers being of sufficiently ~~high~~ similar molecular ~~weight~~ weights and ~~similar~~ ~~polydispersity~~ polydispersities to establish said meaningful library-wide structure property correlations.

Claims 2 - 4.   (Canceled)

Claim 5.    (Previously Presented)    The copolymer library of Claim 1, wherein said copolymers are separately polymerized in solution.

Claim 6. (Withdrawn) The copolymer array of claim 1, wherein said separate reactions are performed in bulk.

Claim 7. (Withdrawn) The copolymer array of claim 1, wherein said separate reactions are performed in the presence of a catalyst.

Claim 8. (Withdrawn)  The copolymer array of claim 1, wherein said separate reactions are performed in the absence of a catalyst.

Claim 9.    (Previously Presented)    The copolymer library of Claim 1, wherein said copolymers are further modified by chemical reactions or cross-linking.

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Claim 10.   (Currently Amended)  A condensation polymer library comprising a number of homologously bivariant copolymers sufficient to incrementally establish <u>meaning-ful library-wide</u> quantitative structure-property correlations, said copolymer library consisting of strictly alternating A- B type copolymers each separately polymerized in parallel under essentially the same polymerization conditions from monomers consisting essentially of:

(1) a first monomer selected from the group consisting of a first series of monomers ~~homologously varying~~ <u>having a single homologous variation</u> along the monomer backbone and ~~having the same~~ polymerizable ~~functional~~ <u>carboxylic acid</u> groups; and

(2) a second monomer selected from the group consisting of a second series of monomers with one homologously varying substituent group and ~~having the same~~ polymerizable <u>-OH</u> ~~functional~~ groups ~~that are reactive with the polymerizable functional groups of said first series of monomers to condense to form said strictly alternating A-B type copolymers~~;

wherein the monomers within each monomer series are selected to have comparable reactivities at said ~~polymerizable~~ functional groups to permit the same polymerization conditions to be employed for each parallel synthesis reaction in a way that results in all polymers being of sufficiently ~~high~~ <u>similar</u> molecular ~~weight~~ <u>weights</u> and ~~similar polydispersity~~ <u>polydispersities</u> to establish said meaningful library-wide <u>structure property correlations</u>.


Claim 11.  (Withdrawn)  The copolymer array of claim 10, wherein said condensation-type reaction is an interfacial process.

Claim 12. (Withdrawn) The copolymer array of claim 10, wherein said condensation-type reaction is a suspension process.

Claim 13. (Canceled)

Claim 14. (Previously Presented) The polymer library of Claim 10, wherein said copolymers are separately polymerized in solution.

Claim 15. (Withdrawn) The copolymer array of claim 10, wherein said separate reactions are performed in bulk.

Claim 16. (Withdrawn) The copolymer array of claim 10, wherein said separate reactions are performed in the presence of a catalyst.

Claim 17. (Previously Presented) The polymer library of Claim 10, wherein said copolymers are separately polymerized in the absence of a catalyst.

Claims 18 - 20. (Canceled)

Claim 21. (Currently Amended) The polymer library of Claim ~~20~~ 1 or 10, wherein said ~~first~~ second monomer series comprises a plurality of different diphenol compounds, each having the general structure:
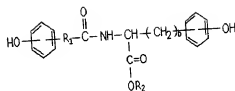
wherein $R_1$ is selected from the group consisting of -CH=CH-, $(CH_2)_a$, and -CHN($L_1L_2$), in

which a has a value from zero to eight, inclusive, and $L_1$ and $L_2$ are independently selected

from the group consisting of hydrogen and straight and branched alkyl and alkylaryl groups

containing up to 18 carbon atoms, provided that $L_1$ and $L_2$ are not both hydrogen; b

independently has a value between 0 and 8, inclusive; and $R_2$ is selected from the group

consisting of straight and branched alkyl and alkylaryl groups containing up to 18 carbon

atoms.

Claim 22. (Withdrawn) The copolymer array of claim 20, wherein said first monomer

series comprises a plurality of different aromatic-aliphatic dihydroxy compounds, each having

the general structure:
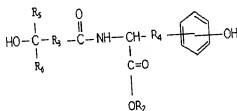


wherein $R_3$ is selected from the group consisting of -CH=CH-, $(-CH_2-)_a$, and   -CHN($L_1L_2$), in

which a has a value from zero to eight, inclusive, and $L_1$ and $L_2$ are independently selected

from the group consisting of hydrogen and straight and branched alkyl and alkylaryl groups

containing up to 18 carbon atoms, provided that $L_1$ and $L_2$ are not both hydrogen; $R_5$ and $R_6$

are each independently selected from the group consisting of hydrogen and straight or

branched alkyl groups having up to 18 carbon atoms, $R_4$ is $(-CH_2-)_b$, wherein b independently

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has a value between zero and eight, inclusive; and $R_2$ is selected from the group consisting of

straight and branched alkyl and alkylaryl groups containing up to 18 carbon atoms.

Claim 23. (Currently Amended)   The polymer library of Claim ~~20~~ 1 or 10, wherein

said ~~second~~ first monomer series comprises a plurality of different dicarboxylic acid

compounds, each having the general structure:

$$HO-\overset{\overset{O}{\|}}{C}-R-\overset{\overset{O}{\|}}{C}-OH$$
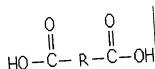
wherein R is selected from the group consisting of saturated and unsaturated, substituted and

unsubstituted alkyl, aryl and alkylaryl groups containing up to 18 carbon atoms.

Claim 24. (Previously Presented) The polymer library of Claim 21, wherein for one or

more of said monomers of said first monomer series, at least one of $R_2$, $L_1$ or $L_2$ contain at

least one ether linkage.

Claim 25. (Withdrawn)   The copolymer array of claim 22, wherein for one or more

of said monomers of said first monomer series, at least one of $R_2$, $R_5$, $R_6$, $L_1$ or $L_2$ contain at

least one ether linkage.

Claim 26. (Previously Presented) The polymer library of Claim 23, wherein for one or

more of said monomers of said dicarboxylic acid monomer series, R contains at least one

ether linkage.

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Claim 27.   (Previously Presented)    The polymer library of Claim 10, wherein said copolymers are further modified by chemical reactions or cross-linking.

Claim 28.   (Withdrawn)    A method for determining the effect of independently varying at least two different structural features of a copolymer on at least one end-use property of said copolymer, comprising:

(a)   measuring at least one end-use property of each copolymer of said copolymer array of claim 1; and

(b)   comparing the variations in each end-use property measured for each of said copolymers as a function of the homologous variation within said monomer series from which said copolymers were polymerized to determine any relationship between said homologous variations and said end-use property variations among said copolymers;

thereby identifying specific members of said plurality of copolymers having useful properties for specific end-uses.